

second on radial nervure in (*similis* they are equal), and in the narrower head.

Halictus vegaus, n. sp.—

♀. Length about 6 mm., brassy green, including the abdomen; legs black. This is very like *H. ruidosensis*, and has the more or less coppery or brassy tint on the supra-clypeal area, but it is certainly a distinct species, presenting the following distinctive characters:—inner orbital margins less concave; basal area of metathorax much longer, and irregularly cancellate all over, especially at the sides; abdomen green (occasionally this is scarcely perceptible), with the first segment minutely transversely lineolate, with quite numerous if minute punctures; third submarginal cell narrower above. In both, the hind spur of hind tibia is pectinate with few teeth. The wings are faintly dusky, and the stigma is light brown.

7 females, June 27.

NEUROPTEROID INSECTS.

BY NATHAN BANKS.

Both of the two Neuropteroid insects collected at the top of the Las Vegas range in New Mexico appear to be undescribed; both belong to genera having many species in northern and boreal regions. One belongs to the Neuroptera, the other to the Trichoptera.

HEMEROBIIDÆ.

Hemerobius cockerelli n. sp.

Head pale yellowish, darker across base of clypeus; antennae pale yellowish, not banded; thorax pale yellowish, with a broad brown stripe on each side, not as plain behind as on the prothorax; abdomen pale at base, darker beyond; legs pale; fore-wings pale brown, with many white spots through the middle

region, these white spots margin similar spots on the otherwise brown veins, and they are arranged in transverse series; there are a few of these spots beyond the outer gradate series. A darker brown band across both series of gradate series, and a large spot at the connection between the cubitus and post-cubitus. Hind-wings hyaline, veins brown. Around the margin of both pairs there are many brown dots, one between and one at the end of each veinlet; there are no white spots on the margin. The wings are moderately narrow, not much swollen on costa at base; three sectors, the first branch of the first connected back to radius twice; the post-cubitus bent toward the cubitus, so that the connecting veinlets are of unequal length. Male appendages with a lower and a median projection, the latter bifid at tip.

Length, 10 mm.

One specimen from top of Las Vegas range, New Mexico.

LIMNOPHILIDÆ.

Asynarchus costalis n. sp.

Face yellowish; palpi yellowish, slender; vertex reddish yellow, ocelli small, posterior and anterior tubercles subequal in size; antennae long and slender, reaching beyond end of wings, yellowish on base, darker beyond, the basal joints about one-half their diameter apart, and as long as the face, the outer and inner sides each marked with a broad brown stripe; legs slender, pale yellowish, spines black, spurs 1-3-4, first tarsal joint of ♂ long, few spines on tibia I, one at tip of femur I; thorax with a brown stripe each side. Fore-wings quite long, rounded at tip and on apical margin, the surface minutely granulate, sparsely clothed with short yellow hair, black hair near posterior margin; the basal costal area is hyaline, beyond and behind is brown, with many small pale spots; larger pale spots in bases of all apical cells

except the first, a long one in base of first sub-apical, a spot on thyridium before the posterior anastomosis and reaching into cell, and a spot in the thyridial cell still nearer the base; veins dark brown. The first and fifth apical cells extend but little basad of the anastomosis; the discal cell is a little longer than its pedicel; the veins at posterior

anastomosis are disjointed. The hind wings are hyaline, with brown veins, the fourth apical cell nearly as broad as the second, a dot in the base of the third.

Length, 13 mm.

Two specimens from top of Las Vegas range, New Mexico.

LIFE HISTORIES OF NORTH AMERICAN GEOMETRIDAE. — XXVIII.

BY HARRISON G. DYAR, WASHINGTON, D. C.

Eucrostis viridipennata Hulst.

Egg. Elliptical, disk-like, flattened concave above and below with sharp edges, one end a little more rounded pointed than the other, narrower, neither perceptibly truncate or depressed. Smooth olivaceous green, shining, with small, narrow and obscure reticulations. Size .8 X .6 X .35 mm.

Stage I. Head rounded bilobed, not shining yellowish ochraceous; width about .3 mm., ocelli black, mouth brown. Body with a subdorsal point on joint 2 anteriorly, the segment slightly collared; else smooth, cylindrical, moderately elongate, normal. Segments faintly several-annulate, the incisures not depressed. A slight rounded stigmal elevation, most visible on joints 5, 6 and 10. Greenish white, a diffuse red-brown dorsal line, narrowed to obsolescence at the ends. Tubercles and setae very small and obscure, the latter very short, black with enlarged tips. Skin minutely shagreened granular.

Stage II. Head bilobed, the lobes produced into vertical, conical horns, flat before; yellowish, granular, ocelli black. Body cylindrical, uniform, segments not incised, finely granular; a slightly elevated dorsal line. Feet normal, the anal ones with large granular plates. Yellowish white, tinted with brown, the granules and subdorsal line whitish, the anal plates pale edged. Conical

horns on joint 2 concolorous, granular. Thoracic feet appressed. No marks, no setae nor tubercles. Anal plate pointed behind.

Stage III. Head strongly conically bilobed, held obliquely forward, pale greenish yellow, granular. Body as before, the cones on joint 2 smaller than the head lobes but similar. Body green, the linear, subdorsal, whitish raised line looped up a little anteriorly on the segments. Pale whitish yellow with a diffuse brown dorsal band obsolete at the ends. Anal plate pointed; anal feet extended laterally with large plates.

Stage IV. Head granular roughened, the lobes produced into conical horns, greenish yellow, apices brown, a blackish shade on the outer side of lobes; width 1 mm. Body as before, light yellowish green with a faint and diffuse brown dorsal line, obsolete at the ends. Subdorsal raised line as before, whitish, obscure. Skin densely pale granular. The long pointed anal shield exceeds the rather high anal leg shields. A dark brown shade subventrally on joint 12. Thoracic feet faintly reddish shaded.

Stage V. Head granular, the high, erect, pointed lobes projecting as far as half the height of the head; whitish green on face, lobes and sides brown shaded, with a few blackish dots; width 1.4 mm. Body slender, green, angular at the joints when bent, the cones on joint 2 smaller and slenderer than